SENECIO ANONYMUS WOOD, AN EARLIER NAME FOR SENECIO SMALLII BRITTON[1]

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Taxonomists regret the occasional necessity to change long established specific epithets. While we firmly believe that adherence to the code of nomenclature is a practical necessity, we offer the present paper with some trepidation.

Senecio anonymus Wood is a widespread and often weedy plant of the southeastern United States. It has been known in the past almost exclusively as *Senecio smallii* Britt.

When Alphonso Wood introduced the epithet *anonymus* into the literature in 1861 (Class-book, p. 464), he presented it without citing an author's name. As Wood cited authors for other species, one might conclude that he merely noted an unnamed species of *Senecio*. However, in his *American Botanist and Florist* (1870, p. 187), Wood cited the name as *Senecio anonymus* Wood, thereby indicating his intent to use *anonymus* as a specific epithet. Article 23, Note 1, of the current *International Code of Botanical Nomenclature* (Stafleu, 1972) provides for the rejection of words not intended as names, but here *anonymus* must be regarded as an intentional name. The later publication date for *S. anonymus* (with the author's citation) antedates *S. smallii* Britt. (1894).

The name *S. anonymus* Wood has been previously found and indexed, but on the basis of the description in Wood's Class-book, Greenman treated it as a synonym for *S. tomentosus* Michx. (1803) (Merrill, 1948). Wood's (1861) descriptions of *S. tomentosus* and *S. anonymus* are as follows:

4 S. tomentosus Mx. Clothed with soft, cotton-like,

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nearly persistent tomentum; root lvs. oblong or oblanceolate or ovate, obtuse, tapering to a long, slender petiole, crenate, the upper sessile; hds. fastigiate, rays 12 to 15; ach. pubescent. — 4 Va. to Fla. and La. St. 1 to 2f high, often nearly leafless above. Corymb simple, subumbellate. Root lvs. with their petioles 6 to 9′ long, 1 to 3′ wide. Rays spreading 16″. Apr. — Jn. — The leaves are exceedingly variable. A variety (on Stone Mt., Ga.) is low, densely tomentous [sic], with the lvs. all radical.

5 S. anonymus. Plant clothed with a white, partly deciduous tomentum; root lvs. small, oblong, obtuse, crenate-serrate, some of them slightly lobed, tapering to a petiole, cauline lvs. long and narrow, remotely sinuate-pinnatifid, the segm. cut-dentate; hds. subumbellate, small, ach. pubescent. — 4 ? Montgomery, Ala. St. 16 to 24′ high. Root lvs. ½′ wide and with their petioles 2 to 3′ long. St. lvs. 6′ long, the upper 1′, almost bipinnatifid. Rays 8 to 10, spreading about 7″. May., Jn.

Except for the tomentum mentioned, *S. anonymus* is clearly described in the original description as having the narrow basal leaves, pinnatifid cauline leaves and small heads regularly associated with the entity long-called *S. smallii*.

Alfonso Wood's herbarium eventually came to the College of Pharmaceutical Sciences, Columbia University (Merrill, 1948) and from there most of it went to the New York Botanical Garden. A search of the latter institution's herbarium produced no specimen resembling or bearing the name *S. anonymus* Wood. However, Dr. Frank Pokorny of the College of Pharmaceutical Sciences kindly located for one of us (R.R.W.) what we take to be the holotype among specimens left in the teaching collection. The holotype will now be permanently deposited in the New York Botanical Garden. The holotype bears the following label data: "Ex herbario Alfonso Wood / Senecio anonymus / Montgomery, Ala. / Legit ipse." No other data accompany

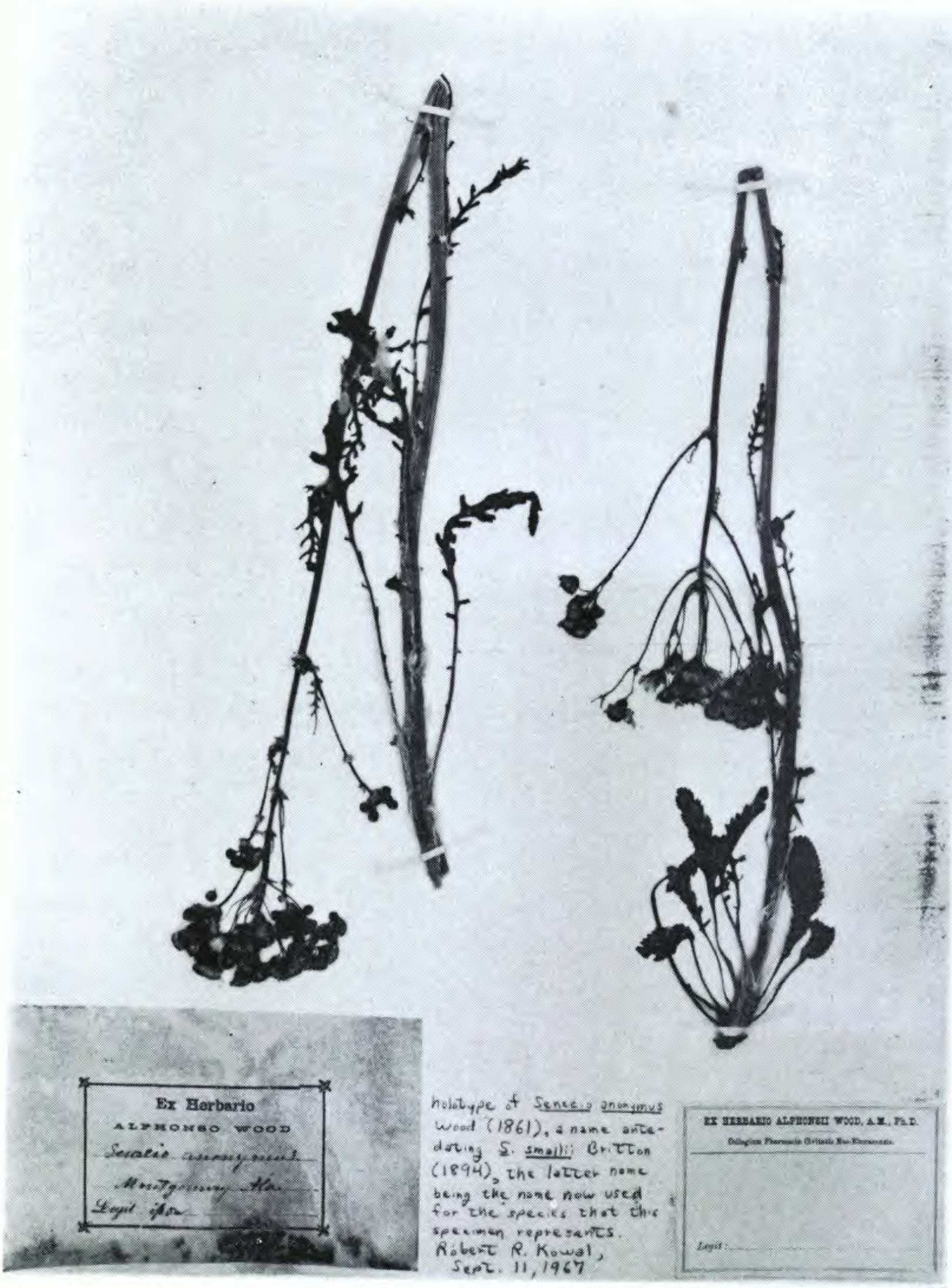

Figure 1. Holotype of *Senecio anonymus* Wood

Table 1

Senecio tomentosus, *S. anonymus* (*S. smallii*), and holotype of *S. anonymus* compared

Character	*S. tomentosus**	Holotype of *S. anonymus*	*S. anonymus* (*S. smallii*)*
1. Basal leaf — length (cm)	22. (17., 29.)	—	16. (8., 23.)
2. Basal leaf — blade length (cm)	8.4 (8.0, 11.7)	—	6.7 (3.6,11.1)
3. Basal leaf — width (cm)	3.4 (2.5, 4.3)	1.3**	1.9 (1.5, 2.4)
4. Basal leaf — tooth number	25. (17, 34)	—	32. (16, 60)
5. Basal leaf — basal angle (degrees)	90. (69., 131.)	—	58. (29., 89.)
6. Stalk height (dm)	5.7 (4.7, 7.0)	4.3, 5.3	4.8 (3.0, 5.6)
7. Stalk width (mm)	4.4 (2.9, 5.8)	3.5	4.4 (2.5, 5.7)
8. Number of cauline leaves	7.3 (4, 14)	7	6.7 (5, 8)
9. Cauline leaf — length (cm)	5.1 (2.6, 7.0)	2.5 – 15.2**	8.6 (6.8,10.8)
10. Cauline leaf — width (cm)	1.2 (0.6, 1.8)	—	1.7 (1.2, 2.4)

Table 1 (cont.)

11. Cauline leaf — number of teeth	16. (9, 27)	—	57. (45, 73)
12. Cauline leaf — number of lobes	2.2 (1, 4)	—	7.5 (4, 11)
13. Inflorescence — number of heads	22. (7, 34)	ca. 32, ca. 52	64. (24, 97)
14. Inflorescence — number of branches	12. (7, 15)	13, 13	17. (10, 25)
15. Flowering head — diameter (cm)	1.9 (1.5, 2.1)	1.5 or 1.3**	1.3 (1.0, 1.6)
16. Involucre — length (mm)	7.7 (6.3, 8.2)	5.7	5.5 (4.7, 6.0)
17. Involucre — width at base (mm)	5.3 (4.0, 6.8)	3.0	3.9 (3.2, 4.8)
18. Ray floret — number	11.8 (9, 14)	8–10 or 6–9**	9.5 (7, 12)
19. Ray floret — ligule length (mm)	7.3 (6.2, 8.8)	5.5	5.3 (4.1, 6.4)
20. Ray floret — ligule width (mm)	2.1 (1.8, 2.4)	2.3	2.0 (1.6, 2.4)
Discriminant score	–3.3 (–4.7,–2.1)	2.4	3.3 (1.7, 4.8)

*Mean and range (in parentheses) based on 6 plants. Detailed definitions of characters are given in Kowal (1968).

**From descriptions (Wood, 1861 and 1870).

the specimen, which consists of but two flowering stalks and no basal rosettes (fig. 1).

The holotype appears to be a rather unexceptional specimen of the species. The tomentum mentioned in the original description is presumably what led Greenman to conclude that *S. anonymus* was a synonym for *S. tomentosus*, but the holotype is glabrescent except for a persistent tomentum in leaf and branch axils. This is a common feature in the species now called *S. anonymus*. A particularly noteworthy point is that *S. tomentosus* is not known to occur in the type locality (i.e., the vicinity of Montgomery, Alabama) where individuals identified as *S. smallii* recently have been seen (Joab L. Thomas, John D. Freeman, and Wilbur H. Duncan, *in lit.*).

Because many aureoid senecios appear to introgress freely with each other (Barkley, 1962; Kowal, 1968), there is always room for some doubt as to the biological nature of any specimen. Indeed, Chapman and Jones (1971) report limited natural hybridization between *S. tomentosus* and *S. anonymus* (as *S. smallii*) and, on the basis of artificial crosses, discuss the potential for introgression between them. In order to strengthen our argument, the holotype of *S. anonymus* was compared with materials of *S. tomentosus* and *S. anonymus* that were collected on May 11 and 18, 1969, along a roadside 4.1 miles east of Castalia, Nash Co., N. C. (Table 1; vouchers: Kowal, *s. n.*, at WIS). Here the two species grew together with limited but evident putative hybridization.

Discriminant analysis was used to confirm our interpretation of the holotype. This multivariate statistical technique can be used to objectively identify unknown individuals as belonging to one of two taxa or as being intermediate (Fisher, 1936; Morrison, 1967). Given means, variances, and convariances for a set of characters from each of the two taxa, discriminant analysis determines the weights for the weighted average (or coefficients for the linear combination) of the original characters that most efficiently separates the two taxa. It results in a

discriminant function, $Y = a_1X_1 + a_2 X_2 + \ldots + ap\ Xp - c$, where the Xi's (i = 1, . . ., p) are measurements on p characters on an individual, the ai's (i = 1, . . ., p) are the weights (or coefficients), and c is an arbitrary constant. Entering actual measurements (X_1, X_2, . . ., Xp) from an individual into the function gives that individual's discriminant score, Y. Comparing the discriminant score of an unknown individual with corresponding scores of individuals known to belong to the two taxa enables one to classify the unknown as one of the taxa or as an intermediate. In the present analysis logarithms of nine characters that could be measured on the type or derived from Wood's description were used to construct the discriminant function separating the North Carolinian local populations of *S. tomentosus* and *S. anonymus*. The coefficients and arbitrary constant of the discriminant function were calculated such that the pooled intraspecific variance of scores equalled one and such that the mean score for the two species were equal in absolute size but opposite in sign. Table 2 lists characters, coefficients, and coefficients standardized to facilitate evaluating the importance of characters to the discriminant function (as the original coefficients are dependent on arbitrary units of measurement). The holotype's score (2.4) is more than five standard deviations from the mean score of *S. tomentosus* (–3.3) but within one standard deviation of the mean score for *S. anonymus* (3.3). Thus, discriminant analysis substantiates treating the holotype of *S. anonymus* as a perfectly good member of the species heretofore called *S. smallii* Britt.

The synonomy for *Senecio anonymus* now becomes:

Senecio anonymus Wood, Class-book of Botany (ed. 1861), p. 464. 1861. Type coll.: *Wood, s.n.*, Montgomery, Ala. (NY).

Senecio smallii Britton, Mem. Torr. Bot. Club 4: 132. 1894. *Senecio aureus* var. *angustifolius* Britt. Mem. Torr. Bot. Club 2: 39. 1890. Type coll.: *Brown et al.*, "The Pass." Peaks of Otter, Va. (NY, PH).

Table 2

Coefficients of discriminant function separating *Senecio tomentosus* from *S. anonymus* using characters measurable on the holotype of *S. anonymus* Wood.

Character	Coefficients	Standardized coefficients*
1. Stalk height	6.0	.67
2. Number of cauline leaves	0.2	.04
3. Inflorescence — no. of heads	–1.5	–.55
4. Inflorescence — no. of branches	2.4	.54
5. Involucre — length	17.7	1.00
6. Involucre — width at base	–4.5	–.41
7. Ray floret — number	3.0	.37
8. Ray floret — ligule length	–1.0	–.11
9. Ray floret — ligule width	0.2	.03
Constant	43.2	29.00

*Standardized coefficients are those that would be used on data standardized such that the pooled intraspecific variance of each character equals one. The coefficient that is largest in absolute value is arbitrarily set equal to one.

Senecio earlei Small, Bull. Torr. Bot. Club **25**: 147. 1898.
Type coll.: *Earle & Underwood*, Auburn, Lee Co., Ala. (NY).

Senecio smallii f. *tristis* Fernald, Rhodora 47: 302. 1945.
Type coll.: *Fernald* 14,859, Ram-Hole Swamp, Seward Forest, Near Triplett, Brunswick Co., Va. (GH).

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